Integrating Civic Engagement through Virtual Learning in the STEM Classroom

Keita Arakawa

karakawa@purdue.edu

Follow this and additional works at: https://docs.lib.purdue.edu/purc

A Pilot Evaluation of Integrating the Virtual Student Federal System (VSFS) Program into the STEM Classroom

Creator: Keita Arakawa (Class of 2022, Industrial Engineering Technology)
Contributors: Daniel Young, Jeongjin Park, Chelsie Rummage, Renee Keilman
Faculty Advisory: Dr. Lisa Bosman

Abstract

Currently there is a lack of real-world projects/clients integrated into higher education classrooms. Although there has been a recent uptick in the need to integrate the humanities into the STEM classroom, service learning and/or civic engagement focused projects are limited. This research investigates methods for incorporating authentic learning experiences into the post-secondary STEM classroom guided by the follow research question: How can we increase access to authentic learning in the higher education classroom? To answer the question, the pilot study engages six undergraduate students of varying age, major, and genders in a group-like virtual internship offered by the U.S. government sponsored Virtual Student Federal Service (VSFS). Traditionally, these types of internships go to individuals rather than teams. The research focuses on team functions as well as project deadlines. The team investigates the data and identifies themes related to what went well, what did not go well, what could be improved, and what lessons were learned. New knowledge from this research are the team's insights from the experience. If VSFS works well as a team project, it could provide another option for the higher education classroom. Other programs such as service learning student organizations, industry-sponsored capstone projects, and co-ops all have implications that VSFS does not. The results have the potential to transform higher education, producing graduates more prepared to enter the workforce, improving educational institution's completion and placement rates, and increasing return for parents who help finance their children's tuition.

Exploratory Intervention

Step 1: Lit Review and Theoretical Research
-Investigate previous research
-summarize findings

Step 2: Sprint Base Participation
1. Field Research
2. Form Insights
3. Focus the Challenge
4. Generate Ideas
5. Prototype
6. Implement

Step 3: VSFS
-Pulling biodiversity data from USAID DEC website

Methods

The method used in this study was research, completion of VSFS internship as a group, and then review participant's experience.

The participants varied in age and major. There are two seniors, one junior, two sophomores and one freshman. Majors include engineering technology (aeronautical, electrical, industrial, and mechanical), computer information technology, and industrial management.

Data comes from two surveys: (1) initial DURI application for internship position and (2) survey taken by participants over their experience contributing in the VSFS internship. The initial DURI application is multiple choice while the VSFS survey was open-ended questions.

WordCloud of answers for "List at least two ways you think you benefit by participating in the DURI experience"

WordCloud of answers for "List at least two challenges you may have with regards to completing the DURI experience"

WordCloud of answers for "If asked by a friend about your DURI experience, how might you respond?"

Results

SUMMARY
VSFS Experience

COMMON TOPICS
Participants ranked Information Literacy and Problem Scoping has most relevant skills

BENEFITS
"Through the DURI experience, I have become more competent in doing research and finding sources and thinking in a multidisciplinary way."

CHALLENGE
Most common issue with this program was time management problems

For more info, visit www.vsfs.state.gov

SUMMARY
WHY DURI?

83% Of participants in the study said "general course credit" was not important to them

50% Of participants have high interest in pursuing graduate school

50% Of participants have high interest in enhancing their professional resume

100% Of participants in this study said the "desire to explore something new" is very important to them

Why DURI?

Answers to "What are the most relevant skills for this study?"

Conclusion

1. Internships vs Group Projects: Although VSFS projects are intended to be internship-based, the exploratory intervention suggests group projects might be a viable option for higher education.
2. Sprintbase is a useful interdisciplinary tool for communication
3. VSFS is a useful platform to gain real-world design challenge experiences.